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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/659,587	09/11/2003	Sung-Su Jung	8734-229.00	4603

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EXAMINER	
NGUYEN, SANG H	

ART UNIT	PAPER NUMBER
2877	

DATE MAILED: 08/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/659,587	JUNG ET AL.	
	Examiner	Art Unit	
	Sang Nguyen	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 May 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) *17-20* is/are withdrawn from consideration.

5)☒ Claim(s) *10,13 and 16* is/are allowed.

6)☒ Claim(s) *1-9,11,12,14 and 15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on RCE 05/24/06 has been entered.

Response to Amendment

Applicant's response to amendment and Rce on 05/24/06 has been entered. It is noted that the application contains claims 1-16 and claims 17-20 are withdrawn (Applicant should canceled non-elected claims 17-20).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okamoto et al (JP 05 006 913) in view of Prior Art of Present Invention (figure 3).

Regarding claims 1 and 4; Okamoto et al discloses a dispensing device of a distribution system, comprising:

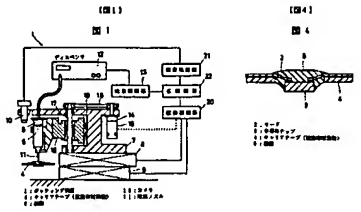
a table (figures 1-2) for holding a wafer substrate (carrier tape [4 of figure 1]);

a syringe (6 of figure 1) forming a seal pattern (considered to be coat adhesive or bonded chips [3 of figures 1 and 5] on the substrate [4 of figure 1] and see abstract) on the substrate (4 of figure 1) by varying a position of the table (abstract);

an image camera (10 of figure 1) for detecting an image of the a seal pattern (see abstract and figure 2)) by varying the position of the table (figures 1-2), wherein the syringe (6 of figure 1) is coupled to the image camera (10 of figure 1); and

a display unit (21, 22, 20 of figure 1) for displaying an image of the seal pattern detected by the image camera (10 of figure 1).

Okamoto et al teaches all of features of claimed invention except for the substrate of a liquid crystal display panel and the seal pattern defines a plurality of image display parts on the substrate. However, PAPI teaches that it is known in the art to provide the substrate of a liquid crystal display panel (paragraph 0006 and 0013; and figures 1-3) and the seal pattern (313, 316 of figure 3) defines a plurality of image (figure 3) display parts on the substrate (300 of figure 3). It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine a seal dispenser of Becker et al with the substrate of a liquid crystal display panel and the seal pattern defines a plurality of image display parts on the substrate as taught by PAPI for the purpose of improving image of seal pattern on the substrate.



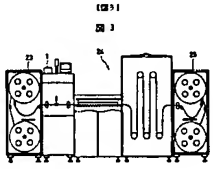
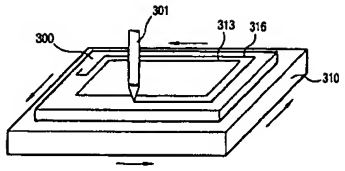


FIG. 3
RELATED ART



Regarding claims 2-3; Okamoto et al teaches all of features of claimed invention except for the substrate has at least one thin film transistor array substrate formed thereon and the substrate has at least one color filter substrate formed thereon. However, PAPI teaches that it is known in the art to provide the substrate has at least one thin film transistor array substrate (Paragraph 0006 and 0015) and the substrate has at least one color filter substrate formed thereon (paragraph 0009 and 0015). It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine a seal dispenser of Okamoto et al with the substrate has at least one thin film transistor array substrate formed thereon and the substrate has at least one color filter substrate formed thereon as taught by PAPI for the purpose of improving operating efficiency and a quality liquid crystal display panel substrate.

Regarding claim 5; Okamoto et al teaches about at least one of the table and the syringe (4 of figure 1) is capable of moving horizontally plane XY (figure 1 and abstract).

Regarding claims 6-7; Okamoto et al discloses the table is capable of moving horizontally in forward/backward and left/right directions (i.e., moving Z-table, Y-table, and X-table and see abstract) , wherein the table is driven with the same path as those for forming the seal pattern and detecting the image of the seal pattern (abstract).

Regarding claim 9; Okamoto et al teaches all of features of claimed invention except for the seal pattern has a rectangular shape encompassing an outer edge of an image display region of the liquid crystal display panel. However, PAPI teaches that it is known in the art to provide the seal pattern members (313,316 of figure 3) has a rectangular shape (figure 3) encompassing an outer edge (316 of figure 3) of an image display region of the liquid crystal display panel (300 of figure 3). It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine a seal dispenser of Okamoto et al with the seal pattern has a rectangular shape encompassing an outer edge of an image display region of the liquid crystal display panel as taught by PAPI for the purpose of aligning or sealing all of substrate with high speed and accuracy.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okamoto et al in view of PAPI as applied to claim 1 above, and further in view of Kitamura et al (U.S. Patent No. 6,139,639).

Regarding claim 8; Becker et al teaches all of features of claimed invention except for the seal pattern has an opening portion. However, Kitamura et al teaches that it is known in the art to provide the seal pattern considered to be the coating pattern (D of figure 1) on the glass substrate (A of figure 1) has an opening portion considered to

be a defect (col.5 lines 29-35) on the seal pattern substrate. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine a seal dispenser of Okamoto et al with the seal pattern has an opening portion as taught by Kitamura for the purpose of improving coating or seal on the substrate with high quality coated products.

Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okamoto et al (JP 05 006 913 in view of Prior Art of Present Invention (figures 1-3) as applied to claim 1 above, and further in view of Fujiwara et al (U.S. Patent No. 5,905,559).

Regarding claims 11-12; Okamoto et al in view of PAPI teaches all of features of claimed invention except for the seal pattern is formed of an ultraviolet-hardening sealant and a thermo-hardening sealant. However, Fujiwara et al teaches that it is known in the art to provide the seal pattern is formed of an ultraviolet-hardening sealant and a thermo-hardening sealant (col.9 lines 14-22). It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine a seal dispenser of Becker et al with the seal pattern is formed of an ultraviolet-hardening sealant and a thermo-hardening sealant as taught by Fujiwara et al for the purpose of easily sealing all substrate with high speed and low cost.

Claims 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Prior Art of Present Invention (figure 3) in view of Bouras et al (U.S. Patent No. 5,906,682).

Regarding claim 14; Prior Art of Present Invention discloses a method for detecting a discontinuous portion of a seal pattern of a substrate (page 9 line 1 to page 10 line 17), comprising:

loading a substrate (300 of figure 3);

forming a seal pattern (316 of figure 3) on the substrate (300 of figure 3) by varying relative position between the substrate (300 of figure 3) and a syringe (301 of figure 3);

aligning a start point of the seal pattern (313 of figure 3). See figures 1-3.

PAPI discloses all of features of claimed invention except for an image camera for detecting an image of the seal pattern by changing the relative position between the image camera and the substrate, displaying the image of the seal pattern, and determining whether the seal pattern has a discontinuous portion by investigating the displayed image of the seal pattern. However, Bouras et al teaches that it is known in the art to provide method and system comprising an image camera (56 of figure 5) for detecting an image of the seal pattern (i. e., a pattern of solder bumps or balls [12 of figure 1] are registered with plated solder pad [14 of figure 1] on a PC substrate [16 of figures 1 and 5]) by changing the relative position between the image camera (56 of figures 5) and the substrate (16 of figures 1 and 5), a display (i.e., electronic weight scale circuit [54 of figure 5]) for displaying the image of the seal pattern (12 of figure 1) on the substrate (16 of figure 1), and a control system (i.e., a computer 30 of figure 5] and a motion controller [34 of figure 5]) for determining whether the seal pattern has a

discontinuous portion or continuous by investigating the displayed image of the seal pattern (co.l.5 line 23 to col.6 line 50). See figures 1-5.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine a method for detecting a discontinuous portion of a seal pattern of a substrate of PAPI with an image camera for detecting an image of the seal pattern by changing the relative position between the image camera and the substrate, displaying the image of the seal pattern, and determining whether the seal pattern has a discontinuous portion by investigating the displayed image of the seal pattern as taught by Bouras et al for the purpose of detecting accurately the occurrence of uncoated or unsealed region on the substrate with high speed device.

Regarding claim 15; PAPI discloses all of features of claimed invention except for the image of the seal pattern is enlarged for being displayed. However, Bouras et al teaches that it is known in the art to provide the image of the seal pattern is enlarged for being displayed (figures 1-4). It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine a method for detecting a discontinuous portion of a seal pattern of a substrate of PAPI with the image of the seal pattern is enlarged for being displayed as taught by Bouras et al for the purpose of easily detecting accuracy coating on the substrate.

Allowable Subject Matter

Claims 10, 13, 16 are allowed.

The prior art of record, taken alone or in combination, fails discloses or render obvious a seal dispenser for fabricating a liquid crystal display panel comprising all the

specific elements with the specific combination including of *the seal pattern having a first seal pattern formed at a dummy region of the substrate where an image display region is not formed and a second seal pattern connected to the first seal pattern and encompassing an outer edge of the image display region* as set forth claim 10.

The prior art of record, taken alone or in combination, fails discloses or render obvious a seal dispenser and method for fabricating a liquid crystal display panel and detecting a discontinuous portion of seal pattern of a liquid crystal display panel comprising all the specific elements with the specific combination including of *first memory unit receiving and storing data for a further comprising: reference line width of the seal pattern, a second memory unit receiving and storing data for a measured line width of the seal pattern detected by the image camera; comparing unit comparing the data stored in the first and second memory units and outputting a control signal when an error exceeds a tolerance limit; and an alarm driving unit generating an alarm upon receiving the control signal of the comparing unit* as set forth claims 13 and 16.

Conclusion

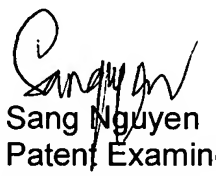
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Takamori (6485782) discloses coating film forming method and apparatus; Ishida et al (5932012) discloses paste applicator having positioning means; Yoneda et al (5415693) discloses paste applicator; Yoneda et al (5437727) discloses apparatus for drawing paste pattern on a substrate; Abe (5406989) discloses method and dispenser for filling liquid crystal into LCD cell; Ando et al (4972798) discloses drawing machine; or Sakano et al (JP 10 199 903) discloses bonder having dispenser.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sang Nguyen whose telephone number is (571) 272-2425. The examiner can normally be reached on 9:30 am to 7:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on (571) 272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

July 29, 2006



Sang Nguyen
Patent Examiner
Art Unit 2877